

## **SEQUENCE LISTING**

<110> INSTITUTO SUPERIORE DI SANITA  
<120> NANO PARTICLES FOR DELIVERY OF A PHARMACOLOGICALLY ACTIVE AGENT  
<130> N.89061A JHS  
<160> 40  
<170> PatentIn version 3.2  
  
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<213> Human immunodeficiency virus  
  
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1 5 10 15  
  
cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96  
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
20 25 30  
  
cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc 144  
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
35 40 45  
  
agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act 192  
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr  
50 55 60  
  
cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac 240  
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp  
65 70 75 80  
  
ccg aca ggc ccg aag gaa cag aag aag gtg gag aga gag aca gag 288  
Pro Thr Gly Pro Lys Glu Gln Lys Lys Val Glu Arg Glu Thr Glu  
85 90 95  
  
aca gat ccg gtc cat cag tga 309  
Thr Asp Pro Val His Gln  
100  
  
<210> 2  
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<400> 2  
  
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
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Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp  
 65 70 75 80

Pro Thr Gly Pro Lys Glu Gln Lys Lys Val Glu Arg Glu Thr Glu  
 85 90 95

Thr Asp Pro Val His Gln  
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<210> 3

<211> 261

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(261)

<400> 3

atg gag cca gta gat cct cgt cta gag ccc tgg aag cat cca gga agt	48
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1 5 10 15	

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt	96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe	
20 25 30	

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc	144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly	
35 40 45	

agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act	192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr	
50 55 60	

cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac	240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp	
65 70 75 80	

ccg aca ggc ccg aag gaa tag	261
Pro Thr Gly Pro Lys Glu	
85	

<210> 4  
<211> 86  
<212> PRT  
<213> Human immunodeficiency virus

<400> 4

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp  
65 70 75 80

Pro Thr Gly Pro Lys Glu  
85

<210> 5  
<211> 261  
<212> DNA  
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<220>  
<221> CDS  
<222> (1)..(261)

<400> 5  
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48  
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
1 5 10 15

cag cct aaa act gct ggt acc aat tgc tat tgt aaa aag tgt tgc ttt 96  
Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
20 25 30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144  
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192  
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240  
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp

65	70	75	80	
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ccg aca ggc ccg aag gaa tag Pro Thr Gly Pro Lys Glu 85				
<210> 6				
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His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly 35                                   40                           45				
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr 50                                   55                           60				
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp 65                                   70                           75                           80				
Pro Thr Gly Pro Lys Glu 85				
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cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe 20                                   25                           30				96
cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly 35                                   40                           45				144

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agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192  
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
 50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcccaa tcc cga ggg gac	240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp	
65 70 75 80	

ccg aca ggc ccg aag gaa tag  
Pro Thr Gly Pro Lys Glu  
85

<210> 8  
<211> 86  
<212> PRT  
<213> Human immunodeficiency virus

<400> 8

Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser
1					5				10					15	

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
20 25 30

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly  
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp  
65 70 75 80

Pro Thr Gly Pro Lys Glu  
85

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<210> 9
<211> 252
<212> DNA
<213> Human immunodeficiency virus
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<220>  
<221> CDS  
<222> (1)..(252)

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<400> 9
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt      48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1          5          10          15

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cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96  
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

6/21

20

25

30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc      144  
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
 35                  40                  45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act      192  
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
 50                  55                  60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc      240  
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly  
 65                  70                  75                  80

ccg aag gaa tag      252  
 Pro Lys Glu

<210> 10  
<211> 83  
<212> PRT  
<213> Human immunodeficiency virus

<400> 10

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
 1                5                10                15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
 20                25                30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly  
 35                40                45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr  
 50                55                60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly  
 65                70                75                80

Pro Lys Glu

<210> 11  
<211> 252  
<212> DNA  
<213> Human immunodeficiency virus

<220>  
<221> CDS  
<222> (1)..(252)

<400> 11

7/21

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser	48
1                   5                   10                   15	
cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe	96
20                   25                   30	
cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly	144
35                   40                   45	
agg aag aag cgg aga cag cga aga cct cct caa ggc agt cag act Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr	192
50                   55                   60	
cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly	240
65                   70                   75                   80	
ccg aag gaa tag Pro Lys Glu	252

<210> 12	
<211> 83	
<212> PRT	
<213> Human immunodeficiency virus	
<400> 12	
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser	15
1                   5                   10                   15	
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe	30
20                   25                   30	
His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly	45
35                   40                   45	
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr	60
50                   55                   60	
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly	80
65                   70                   75                   80	
Pro Lys Glu	

<210> 13	
<211> 306	
<212> DNA	
<213> Human immunodeficiency virus	

<220>  
 <221> CDS  
 <222> (1)..(306)

<400> 13  
 atg gat cca gta gat cct aac cta gag ccc tgg aac cat ccg gga agt 48  
 Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser  
 1 5 10 15

cag cct aca act gct tgt aac aag tgt tac tgt aaa aag tgt tgc tat 96  
 Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr  
 20 25 . 30

cat tgc caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc 144  
 His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly  
 35 40 45

agg aag aag cgg aga cag cga cga gga act cct cag agc agt aag gat 192  
 Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp  
 50 55 60

cat caa aat cct ata cca aag caa ccc ata ccc caa acc caa ggg gtc 240  
 His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val  
 65 70 75 80

tcg aca ggc ccc gaa gaa tcg aag aag gtg gag agc aag gca gag 288  
 Ser Thr Gly Pro Glu Glu Ser Lys Lys Val Glu Ser Lys Ala Glu  
 85 90 95

aca gat cga ttc gat tag 306  
 Thr Asp Arg Phe Asp  
 100

<210> 14  
 <211> 101  
 <212> PRT  
 <213> Human immunodeficiency virus

<400> 14

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser  
 1 5 10 15

Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr  
 20 25 30

His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly  
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp  
 50 55 60

His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val  
 65 70 75 80

Ser Thr Gly Pro Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Ala Glu  
 85                    90                    95

Thr Asp Arg Phe Asp  
 100

<210> 15  
 <211> 306  
 <212> DNA  
 <213> Human immunodeficiency virus

<220>  
 <221> CDS  
 <222> (1)..(306)

<400> 15  
 atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt        48  
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
 1                5                10                15

cag cct aag act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt        96  
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe  
 20                25                30

cat tgc caa gtt tgt ttc ata aca aaa ggc tta ggc atc tcc tat ggc        144  
 His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
 35                40                45

agg aag aag cgg aga cag cga cga aga gct cct caa gac agt cag act        192  
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr  
 50                55                60

cat caa gtt tct cta tca aag caa ccc gcc tcc cag ccc cga ggg gac        240  
 His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp  
 65                70                75                80

ccg aca ggc ccg aag gaa tcg aag aag aag gtg gag aga gag aca gag        288  
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Val Glu Arg Glu Thr Glu  
 85                90                95

aca gat ccg gtc gat tag        306  
 Thr Asp Pro Val Asp  
 100

<210> 16  
 <211> 101  
 <212> PRT  
 <213> Human immunodeficiency virus

<400> 16

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
 1                5                10                15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

10/21

20

25

30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
 35                   40                   45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr  
 50                   55                   60

His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp  
 65                   70                   75                   80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Val Glu Arg Glu Thr Glu  
 85                   90                   95

Thr Asp Pro Val Asp  
 100

&lt;210&gt; 17

&lt;211&gt; 306

&lt;212&gt; DNA

&lt;213&gt; Human immunodeficiency virus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(306)

&lt;400&gt; 17

atg gag cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt       48  
 Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser  
 1               5               10               15

cag cct aaa act gct tgt aat aag tgt tat tgt aaa cac tgt agc tat       96  
 Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr  
 20               25               30

cat tgt cta gtt tgc ttt cag aca aaa ggc tta ggc att tcc tat ggc       144  
 His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
 35               40               45

agg aag aag cgg aga cag cga cga agc gct cct cca agc agt gag gat       192  
 Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp  
 50               55               60

cat caa aat ctt ata tca aag caa ccc tta ccc caa acc caa ggg gac       240  
 His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp  
 65               70               75               80

ccg aca ggc tcg gaa gaa tcg aag aag gtg gag agc aag aca gag       288  
 Pro Thr Gly Ser Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu  
 85               90               95

aca gat cca ttc gat tag   306  
 Thr Asp Pro Phe Asp  
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<210> 18  
<211> 101  
<212> PRT  
<213> Human immunodeficiency virus

<400> 18

Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser  
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Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr  
20 25 30

His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp  
50 55 60

His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp  
65 70 75 80

Pro Thr Gly Ser Glu Glu Ser Lys Lys Val Glu Ser Lys Thr Glu  
85 90 95

Thr Asp Pro Phe Asp  
100

<210> 19  
<211> 261  
<212> DNA  
<213> Human immunodeficiency virus

<220>  
<221> CDS  
<222> (1)..(261)

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1 5 10 15

cag cct agg act cct tgt aac aag tgt tat tgt aaa aag tgt tgc tat 96  
Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Cys Cys Tyr  
20 25 30

cat tgc caa gtt tgc ttc ata acg aaa ggc tta ggc atc tcc tat ggc 144  
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc ggt cag gct 192

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Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala			
50	55	60	
cat caa gat cct ata cca aag caa ccc tcc tcc cag ccc cga ggg gac			240
His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp			
65	70	75	80
ccg aca ggc ccg aag gaa tag			261
Pro Thr Gly Pro Lys Glu			
85			
<210> 20			
<211> 86			
<212> PRT			
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1	5	10	15
Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr			
20	25	30	
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala			
50	55	60	
His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp			
65	70	75	80
Pro Thr Gly Pro Lys Glu			
85			
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<221> CDS			
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<400> 21			
atg gaa cta gta gat cct aac tta gat ccc tgg aac cat cca gga agc			48
Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser			
1	5	10	15
cag cct aca act cct tgt acc aaa tgc tat tgt aaa agg tgt tgc ttt			
Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe			
20	25	30	

cat tgc caa tgg tgc ttt aca acg aag ggc tta ggc atc tcc tat ggc 144  
 His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
           35                40                45

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agg aag aag cgg aga cag cga cga aga act cct caa agc agt cag ata      192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile
      50           55           60

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cat caa gat cct gta cca aag caa ccc tta tcc caa gcc cga ggg aac	240
His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn	
65 70 75 80	

ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag gca aag 288  
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys  
                   85              90              95

aca gat ccg tgc gat tag  
Thr Asp Pro Cys Asp  
100

<210> 22  
<211> 101  
<212> PRT  
<213> Human immunodeficiency virus

<400> 22

Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser  
 1 5 10 15

Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe  
20 25 30

His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly  
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile  
50 55 60 .

His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn  
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys  
85 90 95

Thr Asp Pro Cys Asp  
100

<210> 23  
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<212> DNA  
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<220>

<221> CDS

<222> (1)...(306)

<400> 23

atg	gac	ccg	gta	aat	cct	aac	cta	gag	ccc	tgg	aat	cat	ccg	ggg	agt		48	
Met	Asp	Pro	Val		Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser		
1					5					10						15		

cag cct aaa act ccc tgt aac aaa tgt tat tgt aaa atg tgt tgc tgg

Gln	Pro	Lys	Thr	Pro	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Met	Cys	Cys	Trp		96	
					20				25							30		

cat tgt caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc

His	Cys	Gln	Val	Cys	Phe	Leu	Asn	Lys	Gly	Ile	Ser	Tyr	Gly			144	
							35		40						45		

agg aag aag cgg aag cac cga cga gga act cct cag agc agt aag gat

Arg	Lys	Lys	Arg	Lys	His	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp		192	
					50		55			60								

cat caa aat cct gta cca aag caa ccc tta ccc acc acc aga ggg aac

His	Gln	Asn	Pro	Val	Pro	Lys	Gln	Pro	Leu	Pro	Thr	Thr	Arg	Gly	Asn		240	
					65		70			75						80		

ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag aca gag

Pro	Thr	Gly	Pro	Lys	Glu	Ser	Lys	Glu	Val	Glu	Ser	Lys	Thr	Glu		288	
					85			90							95		

aca gat cca ttc gat tag

Thr	Asp	Pro	Phe	Asp												306	
				100													

<210> 24

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 24

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser

1				5					10				15					
---	--	--	--	---	--	--	--	--	----	--	--	--	----	--	--	--	--	--

Gln Pro Lys Thr Pro Cys Asn Lys Cys Tyr Cys Lys Met Cys Cys Trp

				20				25					30					
--	--	--	--	----	--	--	--	----	--	--	--	--	----	--	--	--	--	--

His Cys Gln Val Cys Phe Leu Asn Lys Gly Ile Ser Tyr Gly

				35				40				45						
--	--	--	--	----	--	--	--	----	--	--	--	----	--	--	--	--	--	--

Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp

				50				55				60						
--	--	--	--	----	--	--	--	----	--	--	--	----	--	--	--	--	--	--

His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn

				65				70				75				80		
--	--	--	--	----	--	--	--	----	--	--	--	----	--	--	--	----	--	--

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu  
85 90 95

Thr Asp Pro Phe Asp  
100

<210> 25  
<211> 261  
<212> DNA  
<213> Human immunodeficiency virus

<220>  
<221> CDS  
<222> (1)..(261)

<400> 25  
atg gac cca gta gat cct aac caa gag ccc tgg aac cat cca gga agt 48  
Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser  
1 5 10 15

cag cct aaa act gct tgt aac aat tgt tat tgt aaa aag tgc tgc tat 96  
 Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr  
 20 25 30

cat tgc caa ttg tgc ttt tta aag aaa ggc tta ggc att tcc tat ggc 144  
 His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly  
                  35                40                45

agg aag aag cgg agc cag cga cga gga act cct gca agt ttg caa gat 192  
 Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp  
 50 55 60

cat caa aat cct ata cca aag caa ccc tta tcc cga acc cgc ggg gac 240  
 His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp  
 65 70 75 80

ccg aca ggc ccg aag gaa tag 261  
Pro Thr Gly Pro Lys Glu  
85

<210> 26  
<211> 86  
<212> PRT  
<213> Human immunodeficiency virus

<400> 26

Met	Asp	Pro	Val	Asp	Pro	Asn	Gln	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser
1				5					10					15	

Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr  
20 25 30

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His	Cys	Gln	Leu	Cys	Phe	Leu	Lys	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly
35						40						45			

Arg	Lys	Lys	Arg	Ser	Gln	Arg	Arg	Gly	Thr	Pro	Ala	Ser	Leu	Gln	Asp
50					55						60				

His	Gln	Asn	Pro	Ile	Pro	Lys	Gln	Pro	Leu	Ser	Arg	Thr	Arg	Gly	Asp
65					70					75			80		

Pro	Thr	Gly	Pro	Lys	Glu
				85	

&lt;210&gt; 27

&lt;211&gt; 306

&lt;212&gt; DNA

&lt;213&gt; Human immunodeficiency virus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(306)

&lt;400&gt; 27

atg	gag	ctg	gta	gat	cct	aac	cta	gag	ccc	tgg	aat	cat	ccg	gga	agt	48
Met	Glu	Leu	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser	
1				5				10			15					

cag	cct	aca	act	gct	tgt	agc	aag	tgt	tac	tgt	aaa	ata	tgt	tgc	tgg	96
Gln	Pro	Thr	Thr	Ala	Cys	Ser	Lys	Cys	Tyr	Cys	Lys	Ile	Cys	Cys	Trp	
				20				25			30					

cat	tgc	caa	cta	tgc	ttt	ctg	aaa	aaa	ggc	tta	ggc	atc	tcc	tat	ggc	144
His	Cys	Gln	Leu	Cys	Phe	Leu	Lys	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly	
				35				40			45					

agg	aag	aag	cg	aag	cac	cga	cga	gga	act	cct	cag	agc	agt	aag	gat	192
Arg	Lys	Arg	Lys	His	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp		
				50				55			60					

cat	caa	aat	cct	ata	cca	gag	caa	ccc	cta	ccc	atc	atc	aga	ggg	aac	240
His	Gln	Asn	Pro	Ile	Pro	Glu	Gln	Pro	Leu	Pro	Ile	Ile	Arg	Gly	Asn	
				65				70			75		80			

ccg	aca	gac	ccg	aaa	gaa	tcg	aag	aag	gag	gtg	g	agc	aag	gca	gag	288
Pro	Thr	Asp	Pro	Lys	Glu	Ser	Lys	Lys	Glu	Val	Ala	Ser	Lys	Ala	Glu	
				85				90			95					

aca	gat	ccg	tgc	gat	tag											306
Thr	Asp	Pro	Cys	Asp												
			100													

&lt;210&gt; 28

&lt;211&gt; 101

&lt;212&gt; PRT

&lt;213&gt; Human immunodeficiency virus

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&lt;400&gt; 28

Met	Glu	Leu	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser
1					5				10				15		

Gln	Pro	Thr	Thr	Ala	Cys	Ser	Lys	Cys	Tyr	Cys	Lys	Ile	Cys	Cys	Trp
							20		25				30		

His	Cys	Gln	Leu	Cys	Phe	Leu	Lys	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly
							35		40			45			

Arg	Lys	Lys	Arg	Lys	His	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp
						50		55			60				

His	Gln	Asn	Pro	Ile	Pro	Glu	Gln	Pro	Leu	Pro	Ile	Ile	Arg	Gly	Asn
						65		70			75		80		

Pro	Thr	Asp	Pro	Lys	Glu	Ser	Lys	Glu	Val	Ala	Ser	Lys	Ala	Glu
						85		90			95			

Thr	Asp	Pro	Cys	Asp
			100	

&lt;210&gt; 29

&lt;211&gt; 306

&lt;212&gt; DNA

&lt;213&gt; Human immunodeficiency virus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)...(306)

&lt;400&gt; 29

atg	gag	ccg	gtt	aat	ccc	tgg	aac	cac	ccg	gga	agt				48
Met	Glu	Pro	Val	Asp	Pro	Ser	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser
1				5				10			15				

cag	cct	aca	act	gct	tgt	agc	aat	tgt	tac	tgt	aaa	atg	tgc	tgc	tgg		96
Gln	Pro	Thr	Thr	Ala	Cys	Ser	Asn	Cys	Tyr	Cys	Lys	Met	Cys	Cys	Trp		
							20		25		30						

cat	tgc	caa	ttg	tgc	ttt	ctg	aac	aag	ggc	tta	ggc	atc	tcc	tat	ggc		144
His	Cys	Gln	Leu	Cys	Phe	Leu	Asn	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly		
							35		40		45						

agg	aag	aag	cg	aga	cgc	cga	cga	gga	act	cct	cag	agc	cgt	cag	gat		192
Arg	Lys	Lys	Arg	Arg	Arg	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Arg	Gln	Asp		
							50		55		60						

cat	caa	aat	cct	gtt	cca	aag	caa	ccc	tta	ccc	acc	acc	aga	ggg	aac		240
His	Gln	Asn	Pro	Val	Pro	Lys	Gln	Pro	Leu	Pro	Thr	Thr	Arg	Gly	Asn		
							65		70		75		80				

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ccg aca ggc ccg aaa gaa tcg aag aag gag gtg gcg agc aag aca gag 288  
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu  
 85 90 95

aca gat ccg tgc gat tag 306  
 Thr Asp Pro Cys Asp  
 100

<210> 30  
 <211> 101  
 <212> PRT  
 <213> Human immunodeficiency virus

<400> 30

Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser  
 1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp  
 20 25 30

His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly  
 35 40 45

Arg Lys Lys Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp  
 50 55 60

His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn  
 65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu  
 85 90 95

Thr Asp Pro Cys Asp  
 100

<210> 31  
 <211> 348  
 <212> DNA  
 <213> Human immunodeficiency virus

<220>  
 <221> CDS  
 <222> (1)...(348)

<400> 31  
 atg gat cca gta gat cct gag atg ccc cct tgg cat cac cct gga agt 48  
 Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser  
 1 5 10 15

cag ccc cag acc cct tgt aat aag tgc tat tgc aaa aga tgc tgc tat 96  
 Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr

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20

25

30

cat tgc tat gtt tgt ttt gca agc aag ggt ttg gga atc tcc tat ggc      144  
 His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly  
 35                          40                          45

agg aag aag cga cgg aga cca gcc gct gct gcg agc cat cca gat aat      192  
 Arg Lys Lys Arg Arg Pro Ala Ala Ala Ser His Pro Asp Asn  
 50                          55                          60

caa gat cct gta cca gag caa ccc cca tcc atc acc aac agg aag cag      240  
 Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln  
 65                          70                          75                          80

aaa cgc cag gag gaa cag gag aag gag gtg gag aag gag aca ggc cca      288  
 Lys Arg Gln Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro  
 85                          90                          95

ggt gga tac cct cgc cgc aag gat tct tgc cac tgt tgt aca cgg acc      336  
 Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr  
 100                          105                          110

tca gga caa taa      348  
 Ser Gly Gln  
 115

<210> 32  
<211> 115  
<212> PRT  
<213> Human immunodeficiency virus

<400> 32

Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser  
 1                          5                                  10                          15

Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr  
 20                          25                                  30

His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly  
 35                          40                                  45

Arg Lys Lys Arg Arg Pro Ala Ala Ala Ser His Pro Asp Asn  
 50                          55                                  60

Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln  
 65                          70                                  75                          80

Lys Arg Gln Glu Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro  
 85                          90                                  95

Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr  
 100                          105                                  110

Ser Gly Gln  
115

<210> 33  
<211> 20  
<212> PRT  
<213> Human immunodeficiency virus

<400> 33

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser  
1 5 10 15

Gln Pro Lys Thr  
20

<210> 34  
<211> 20  
<212> PRT  
<213> Human immunodeficiency virus

<400> 34

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val  
1 5 10 15

Cys Phe Ile Thr  
20

<210> 35  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus

<400> 35

Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys  
1 5 10 15

<210> 36  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus

<400> 36

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln  
1 5 10 15

<210> 37  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus

<400> 37

Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val Ser Leu Ser  
1 5 10 15

<210> 38

<211> 21

<212> PRT

<213> Human immunodeficiency virus

<400> 38

Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val  
1 5 10 15

Ser Leu Ser Lys Gln  
20

<210> 39

<211> 16

<212> PRT

<213> Human immunodeficiency virus

<400> 39

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp  
1 5 10 15

<210> 40

<211> 14

<212> PRT

<213> Human immunodeficiency virus

<400> 40

Pro Thr Ser Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys Glu  
1 5 10